

REMARKS

As noted above, the Applicant appreciates the Examiner's thorough examination of the subject application.

Claims 1-20 are pending in the subject application. In the final Office Action mailed 15 October 2009, claims 1-20 were rejected on various statutory grounds, as described in further detail below. Claims 1 and 11 are amended herein. No new matter has been added.

Reconsideration and further examination of the subject application is respectfully requested in view of the foregoing amendments and the following remarks.

Claim Objections

Concerning items 1 of the Office Action, the Examiner objected to claim 1 for the informality that the abbreviation for the unit of measurement "micron" was incorrectly recited. In response, claim 1 is amended to include a common abbreviation for micron, i.e., "μm". Thus, the informality is believed to be overcome.

Concerning item 2 of the Office Action, the Examiner stated that claim 1 should be amended in conformance with page 12, paragraph 40 of the specification. A suggestion for an appropriate claim amendment was provided. In response, claim 1 has been amended in conformance with the Examiner's suggestion. Thus, the informality is believed to be overcome.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 2, 4, 5, 9, 10, and 20

Concerning items 3-11 of the Office Action, claims 1, 2, 4, 5, 9, 10, and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,096,401 to Tamura et al. ("Tamura"). Applicant traverses the rejection and requests reconsideration for the following reasons.

One requirement for a rejection under 35 U.S.C. § 103(a) is that the cited reference(s) must teach or suggest, to one of ordinary skill in the art, each and every limitation of the claim(s) at issue. This requirement is not met in this situation, as will be explained.

The independent claim subject to the instant rejection, i.e., amended claim 1, recites the following:

An apparatus for manufacturing pre-formatted thin tape linear optical data storage media including an elongated linear polymer layer with a substrate having a thickness of about 4 μm to about 275 μm , comprising:

a seamless drum mounted for rotation about a rotation axis, and including a circumferential outer surface having a seamless surface and a predetermined pattern of protrusions for embossing at least one pattern of optically readable embossments in an elongated linear polymer layer rolled on the drum; and

a radiation source for causing the pattern of optically readable embossments of the elongated linear polymer layer to solidify prior to the embossments being removed from the protrusions of the outer surface of the drum.

[Emphasis Added]

In contrast, Tamura teaches making discs (CD's, etc.) and optical cards. It does not mention optical tape. For Tamura, the sole modification above and beyond the prior art is taught as being the addition of structures such as scraping devices to remove excess (cured or uncured) UV polymer, e.g., wiping member 7 depicted in FIGS. 1-3.

Tamura teaches the use of discreet elongated "sheets" as substrates, not rolls of substrate, and use a "roll stamper" to form an optical pattern on sheets fed through "feed rolls" (pinch rolls), such as in a sheet-fed rotary printing press or mimeograph machine. Tamura is not understood as teaching or suggesting a *roll-to-roll* continuous process, i.e., one in which a substrate is unwound from a spool and fed into roll stamper, then the finished optical media is rewound onto another spool. This is not an aspect of the Tamura invention, since thick sheet substrates used by the invention of Tamura (e.g., with thicknesses of 300 μm to 1,500 μm) for the optical discs and cards *cannot* be effectively wound on rolls due to physical distortion ("roll-set", curl...). Because the objective of the Tamura processes is to make optical discs and cards

(which are, by their nature, of a thickness sufficient to impart sufficient rigidity), rewinding would not make sense or be feasible, hence the Tamura processes are not “roll-to-roll” processes. Thus, Tamura is not understood as teaching or suggesting the limitations of amended independent claim 1, and is actually seen as teaching away from the thinness of the substrate recited.

Additionally, Tamura is believed to teach away from Applicant’s claims by teaching that the wiping member 7 touches the surface of the roll stamper 3 (Tamura, col. 6, lines 46-57). This direct contact with the roll stamper itself would cause contamination and/or damage to patterns on the tool, if such patterns were on the scale as in Applicant’s recited claims.

Thus, Tamura fails to teach (or suggest) each and every limitation as arranged in amended claim 1, which is the base claim for the claims under rejection. Accordingly, Tamura forms and improper basis for a rejection of claims 1, 2, 4, 5, 9, 10, and 20 under 35 U.S.C. § 103(a). Applicant respectfully requests that the rejection be removed accordingly.

Claims 3, 6, and 7

Concerning items 12-17 of the Office Action, claims 3, 6, and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamura, cited previously, in view of International Patent Application Publication No. WO 97/14142 to Norden (“Norden”). Applicant traverses the rejection and requests reconsideration for the following reasons.

As noted previously, one requirement for a rejection under 35 U.S.C. § 103(a) is that the cited reference must teach each and every limitation as arranged in the claim(s) at issue. This requirement is not met in the case, as will be explained.

The deficiencies of Tamura relative to amended claim 1, the base claim of claims 3, 6, and 7, are described above.

Norden, described in Applicant’s previous paper, is directed to methods of manufacturing **read-only optical media** and is not understood as curing the deficiencies noted previously for Tamura relative to claim 1. At the very least, Norden fails to teach (or suggest) **using a seamless**

drum for embossing optical storage media (i.e., media that can be written to and erased), as recited in amended independent claim 1.

Thus, the combination Tamura and Norden forms and improper basis for a rejection of claims 3, 6, and 7 under 35 U.S.C. § 103(a). Applicant respectfully requests that the rejection be removed accordingly.

Claim 8

Concerning items 18-21 of the Office Action, claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamura in view of Norden, as applied to claims 6-7, and further in view of U.S. Patent No. 6,162,519 to Takakuwa et al. (“Takakuwa”). Applicant traverses the rejection and requests reconsideration for the following reasons.

The deficiencies of Tamura and Norden relative to amended claim 1, the base claim for claim 8, have been described previously.

The tertiary reference, Takakuwa, is directed to optical discs that are made from polyolefin polymers and related methods for making such discs. See, e.g., Takakuwa, col. 2, lines 17-26. The objective of Takakuwa appears to be improved birefringence using polyolefin substrates. Polyolefin films, however, are not stable in thing gages (e.g., they possess a taffy-like character.

In further contrast with Applicant’s claimed invention, e.g., as recited in amended claim 1, Takakuwa is particularly irrelevant in that: (1) it is only about improved manufacturing process for discs, (2) making a special polyolefin sheet for producing discs, (3) it concerns 2nd surface read/write and the substrate is designed to have low birefringence,(4) all of the claims of Takakuwa mention forming the disc on a **molded polyolefin** substrate. As noted previously, the polyolefin films of Takakuwa are not stable and do not work for thin optical tape, i.e., tape that can be rolled onto a spool as part of a roll-to-roll process, as claimed by Applicant.

While Takakuwa is cited as teaching a method of writing recording marks using a laser cutting machine with a pattern based on desired data, such is not what is recited in Applicant’s

claims, e.g., claim 8. There is a significant difference between Takakuwa's "laser cutting machine" and Applicant's claimed optical head array. Takakuwa, in col. 13, lines 12-14, is *not* referring to a pattern replication process, but rather is referring to a typical laser beam recorder that is used as the mastering lathe in a CD/DVD mastering operation. Such a laser-based machine is typically a multimillion-dollar machine that is massive, cuts "open-loop" patterns (does not use pre-formatted tracks), requires climate controlled class-100 environment, and has a very extensive support infrastructure. Applicant's claimed invention, on the other hand, is a mechanical mass-reproduction machine/process designed to produce very inexpensive **copies** of complex and expensive patterns such as made by the laser beam recorder described by Takakuwa.

Thus, the combination of Tamura, Norden, and Takakuwa, whether the references are considered alone or in combination, form an improper basis for a rejection of claim 8 under 35 U.S.C. § 103(a). Applicant therefore asks that the rejection be withdrawn accordingly.

Claims 11-17 and 19

Concerning items 22-31 of the Office Action, claims 11-17 and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Norden in view of U.S. Patent No. 5,627,817 to Rosen et al. ("Rosen"). Applicant traverses the rejection and requests reconsideration for the following reasons.

Amended independent claim 11, the base claim of claims 12-17 and 19, recites the following:

A method for manufacturing pre-formatted linear optical data storage media including an elongated linear polymer layer, comprising:

softening a surface of an elongated linear polymer layer **with a substrate having a thickness of about 4 μ m to about 275 μ m;**

embossing at least one pattern of optically readable embossments in the softened surface of the elongated linear polymer layer using a seamless drum having protrusions on a seamless surface;

hardening the embossed surface of the elongated linear polymer layer prior to removing the linear polymer layer from the drum; and

winding the elongated linear polymer with the embossed surface layer into a roll.

[Emphasis added]

The deficiencies of Norden relative to claim 6 are described above. Rosen is directed to a multiple data-layer dye-based optical disk drive. See, e.g., Rosen, col. 2, lines 27-30. Rosen is not understood as teaching “embossing at least one pattern of optically readable embossments in the softened surface of the elongated linear polymer layer using a **seamless** drum having protrusions **on a seamless surface**,” as recited in claim 11.

While the Office Action admits that Norden does not teach use of a seamless drum, the Office Action never the less concludes that use of a seamless drum would be obvious to one skilled in the art. Norden and the conclusory statement of the Office Action fail to enable such a seamless drum that contains embossing patterns as claimed by Applicant. Thus, for this rejection the Office Action is believed to have employed hindsight analysis to an impermissible degree.

As claims 11-17 and 19 include limitations similar to those of claim 6, including, *inter alia*, “embossing at least one pattern of optically readable embossments in the softened surface of the elongated linear polymer layer using a seamless drum having protrusions on a seamless surface,” they are patentable for at least the same reasons.

Consequently, Applicant submits that the rejection of claims 11-17 and 19 under 35 U.S.C. § 103(a) over Norden in view of Rosen is improper and should be removed accordingly.

Claim 18

Concerning items 32-34 of the Office Action, claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Norden in view of Tamura. Applicant traverses the rejection and requests reconsideration as claim 18 is believed to be patentable for at least the reason of its dependence on claim 11 (noted previously).

The other claims currently under consideration in the application are dependent from their respective independent claims discussed above and therefore are believed to be allowable

over the applied references for at least similar reasons. Because each dependent claim is deemed to define an additional aspect of the invention, the individual consideration of each on its own merits is respectfully requested.

The absence of a reply to a specific rejection, issue, or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be other reasons that have not been expressed for patentability of any or all claims of the application. Finally, nothing in this paper should be construed as an intent to concede, or an actual concession of, any issue with regard to any claim, or any cited art, except as specifically stated in this paper, and the amendment or cancellation of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment or cancellation.

Conclusion

For the foregoing reasons, Applicant submits that all of the claims under consideration in the subject application are in condition for allowance. A timely Notice of Allowance for the application is therefore earnestly solicited.

Should any questions arise, the Examiner is invited to call the undersigned.

Authorization is hereby given to charge our deposit account no. 50-1133 for any fees required for the prosecution of the subject application.

Respectfully submitted,

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